

# NAIP QA

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# Accomplishments

- Developed a quantitative approach to quality assessments
- Established databases of inspection results for trend analysis
- Adjusted radiometric standards
  - Color +/-5
  - Contrast 140-160
  - Histogram Mean from Peak
- Aligned inspection more closely to contract specifications
- Developed a high level first look inspection
- QA teleconferences

# Inspection Process

- Phase #1      **Full scale**
  - Quick Visual Look at CCM for major radiometric and mechanical errors
- Phase#2      **1:11,250 scale**
  - Detailed examination of all mosaiced tiles
    - Offset
    - 10% cloud cover
    - Missing imagery
    - Horizontal Accuracy
    - Other Pixilization

# Inspection Process

- Phase #3      **1:750 Scale**
  - Close up view of random individual tiles used to make the mosaic
  - Close up view of defects identified in phase 2
  - Reflected as a percentage in the reports
  - Seam Line shape File
  - Radiometric evaluation
    - Clipping      <98      (0)
    - Contrast      140-160 (0)
    - Histogram mean – not graded this year      108-148 (0)
    - Color Balance, visual and radiometric      +/- 5      (0/A,B,C)

# Reports and Graphs

- Reports and graphs are stored in database
  - Buffered for human error
  - Based on a score of a possible 25 points
  - All states normalized
    - The smaller the normalized percentage and higher the raw score = better image quality
    - Defects to contracted quarter quad
    - Final point tally is **green** on the score sheet
    - Contractor performance/standing is **green** in bar graphs

# NAIP 2008 QA Assessment

- Scoring Criteria
- Scoring Sheet Example
- Contractor Standings
- State Assessments
- Contractor Standings By State/Contractor Raw Data

# Grading Criteria

- **Final Score**

- Normalization is subtracted from the 25 Points possible, the lower the normalized percentage and higher the raw score = better image quality, represented in **Green** on bar Graphs and final points in grade sheets

- **Normalization**

- Percentage of contractual defects divided by contracted QQs

- **Contractual Physical Defects, 15 points possible**

- 1 point assessed per 10 defects

- **Visual Quality, 10 points possible**

- Contrast and Clipping; 1 point assessed per 3 point deviation from mean outer control limits
- Histogram Mean posted but not graded this year due to being a new standard, will be graded in 2010
- Color Balance; hybrid evaluation
  - Radiometric; .5 point assessed for deviation from mean outer control limits
  - Visual; Mean visual quality compared to pre-production sample. 1 point assessed going from an A to a B and 2 points assessed going from a A to a C

- Excessive Hue/Saturation of Green Color
- Excessive Offsets throughout

## Contractual Defects

= **XX**/15

- |                       |   |
|-----------------------|---|
| • Offset              | 0 |
| • 10% cloud cover     | 0 |
| • Missing imagery     | 0 |
| • Horizontal Accuracy | 0 |
| • Other Pixilization  | 0 |

## Visual Quality, Mean errors V. Standard

= **XX**/10

- |   |         |           |
|---|---------|-----------|
| • Clipping                              | <98     | (0)       |
| • Contrast                              | 140-160 | (0)       |
| • Histogram mean – not graded this year | 108-148 | (0)       |
| • Color Balance, visual and radiometric | +/- 5   | (0/A,B,C) |

## • Point tally

**XX/25**

Normalized Defects

**XX %**

Point – Norm = Final Score

**XX/25**



# Future challenges

- Develop CIR standards
- Natural color saturation standards

